ADEQ Arizona Department of Environmental Quality
Janice K. Brewer, Governor
Henry R. Darwin, Director

# TECHNICAL SUPPORT DOCUMENT

**TECHNICAL REVIEW AND EVALUATION**
**SIGNIFICANT PERMIT REVISION #59767 TO OPERATING PERMIT #53023**
**NOVO BIOPOWER, LLC**

## I. INTRODUCTION

This Class I, Title V significant permit revision for Novo BioPower, LLC (the Permittee) incorporates the following changes to the operating permit: (1) Changes to the averaging time for emissions of hydrogen chloride (HCl) from a rolling 3-hour average to a rolling 365-day total; (2) A temporary increase in the facility wide annual emissions of nitrogen oxide ($NO_X$) limit from 240 tons per year (tpy) to 246 tpy; (3) Removal of pressure drop reading as a Compliance Assurance Monitoring (CAM) indicator; (4) Addition of two fire pump engines; (5) Use of stack flow monitor data to determine the boiler heat input for HCl emission calculations; (6) Revisions to the methodology for establishing the F-Factor using ultimate analysis test data and stack flow monitor data to determine the boiler heat input; (7) Changes to data substitution methodology for missing data from HCl Continuous Emission Monitoring System (CEMS); (8) Changes to quality assurance (QA)/ quality control (QC) procedures for the HCl CEMS to include an updated Performance Specification (PS) 18 and Procedure 6; (9) Addition of the requirement to perform either EPA Reference Method 26A or EPA Reference Method 320 as the Reference method required for the annual Relative Accuracy Test Audit (RATA) for the HCl CEMS; (10) Addition of the requirement to perform EPA Reference Method 7E as the Reference Method required for the annual RATA for the $NO_X$ CEMS; (11) Minor editorial changes throughout the permit.

[Note: The operating permit has been updated to reflect these changes. The public notice only includes the changes in blue font. Only the these changes are open for public comment and review]

### A. Company Information

Facility Name: Novo BioPower, LLC

Mailing Address: PO Box 2649
Snowflake, AZ 85937

Facility Address: 4764 W Highway 277
Snowflake, AZ 85937

### B. Attainment Classification

The facility is located in an area that is either unclassified or classified as being in attainment for all criteria air pollutants.

## II. BACKGROUND

### A. Facility Description

1. Process Description

The Novo BioPower, LLC facility is fueled by waste wood and bark from nearby forest salvage operations, other sources of unprocessed wood waste, and small

portions of paper fiber from the previous Catalyst paper mill. The plant has a nominal capacity of 24 Megawatts (MW), and consists of an approximate 340 Million British thermal unit (MMBtu) boiler, steam turbine unit, a cooling tower, and wood handling equipment. The fuel is fired in the boiler to produce steam. The steam from the boiler operates the steam turbine, producing electricity. The spent steam from the turbine is then delivered to a condenser to condense the steam back to water for reuse in the boiler. Water from the cooling towers is used to condense the steam in the condenser.

2. Revision Description

The following are descriptions of revisions to operating permit #53023:

a. During permit renewal #53023, the Permittee demonstrated that the modeled concentration of HCl emissions from the boiler stack showed no exceedances of the standards. Therefore, this revision amends the averaging time to demonstrate compliance with the HAP limit.

b. With the addition of the two emergency fire pump engines and various changes with boiler firing conditions, the Permittee has requested a temporary increase in the facility wide $NO_X$ limit. The temporary increase will revert back to the previous limit on November 1, 2014.

c. Revision to the methodology for determining the F-Factor using the stack flow monitor and fuel testing.

d. Removal of pressure drop as a CAM indicator since it is not an indicator of particulate matter emissions for the baghouses at Novo BioPower, LLC. The Permittee will continue to use opacity readings from the COMS as an indicator.

e. When the Novo BioPower, LLC facility was originally permitted, the facility received paper fiber from the Catalyst paper mill. Since the closure of the paper mill, the opacity readings for the Permittee's baghouses have been near zero. For this reason, this revision defines an opacity excursion level and removes the previously permitted method of developing an excursion level based on the most previous performance test.

f. At the time permitting was initially conducted for the incorporation of the HCl CEMS into the Permittee's facility, the technology of HCl CEMS was relatively new and the United States Environmental Protection Agency (USEPA) had not yet developed a specific performance specification or procedure for the QA/QC activities of these devices. The USEPA had approved PS Z and Procedure DD for use at a specific facility elsewhere in the United States. As the most up-to-date version of a QA/QC procedure, the Permittee was required to meet the requirements of these standards to ensure the accuracy of the measurements taken at the facility. Currently, the USEPA has published a more comprehensive and appropriate procedure for the QA/QC activities of the HCl CEMS, Performance Specification 15 and FTIR Protocol. This revision changes the required QA/QC procedure and requires the Permittee follow Performance Specification 18 and Procedure 6.

g. Revision to the methodology for substituting HCl CEMS monitoring data to require the use of 40 CFR Part 75, Subpart D.

h. Minor edits to correct typographical errors and to clarify conditions.

## III. EMISSIONS

The addition of the two emergency fire pumps approved through this permit revision will result in a small increase in facility wide emissions. Table 1 below shows the facility wide potential to emit.

**Table 1: Facility wide controlled emissions**

| Pollutant | Tons per Year (tpy) Before Revision | Tons per Year (tpy) After Revision |
|---|---|---|
| $PM_{10}$ | 126.6[1] | 126.6[1] |
| VOC | 22.07 | 22.21 |
| $SO_2$ | 225[1] | 225[1] |
| $NO_x$ | 240[1] | 240[1] and 246[2] |
| CO | 225[1] | 225[1] |
| Federal Hazardous Air Pollutants (HAPs) | <9 tpy for any one HAP[1]<br><22.5 for combination of HAPs[1] | <9 tpy for any one HAP[1]<br><22.5 for combination of HAPs[1] |
| $CO_2e$ | 314,505 | 314,647 |

[1] Based on limits in the permit
[2] Based on limit in the permit which takes effect upon issuance of this significant revision until November 1, 2014

## IV. APPLICABLE REGULATIONS

The addition of the two emergency fire pump engines requires the addition of applicable regulations to the permit, which can be found in Table 2, below.

**Table 2: Applicable Regulations**

| Unit | Regulation | Verification |
|---|---|---|
| Emergency Fire Pump #1 and #2 Diesel | A.A.C. R18-2-719<br>40 CFR Part 63, Subpart ZZZZ | Subpart IIII does not apply to Emergency Fire Pump #1 and #2 because these engines were manufactured before June 12, 2006. Therefore, Subpart ZZZZ and 719 is applicable to both engines. |

## V. MONITORING AND RECORDKEEPING REQUIRMENTS

The following are descriptions of changes to the recordkeeping and reporting requirements for emissions units at Novo BioPower, LLC.

**A.** CAM Indicators

This revision removes the pressure drop readings across the baghouse as a CAM indicator, leaving opacity as the only permitted indicator for particulate matter emissions.

**B.** Opacity

This revision defines an opacity excursion level of 7.5% and removes the previously permitted method of developing an excursion level based on the most recent performance test. Historical performance testing for opacity has showed opacity levels no greater than 5%. Using historical test data and the required calibration drift of ± 2% for the COMS, an excursion level of 7.5% opacity was established.

**C.** HCl CEMS

This revision changes the required QA/QC procedure and requires the Permittee follow Performance Specification 18 and Procedure 6. During the annual Relative Accuracy Test Audit (RATA) for the HCl CEMS, the Permittee is required to conduct either EPA Reference Method 26A or EPA Reference Method 320 as the Reference Method required for the RATA by Performance Specification 18 and Procedure 6.

**D.** $NO_X$ CEMS

During the annual RATA for the $NO_X$ CEMS, the Permittee is required to conduct an EPA Reference Method 7E as the Reference Method required for the RATA by Performance Specification 18 and Procedure 6.

## VI. TESTING REQUIREMENTS

The following are changes to the testing required for emission units at Novo BioPower, LLC.

**A.** Through this revision, the permit will now be required to perform annual testing for total HAPs metals, not total metals.

**B.** If the Permittee chooses to determine a fuel mix specific F-Factor, the Permittee will be required to perform, on a monthly basis November 1, 2014 and quarterly thereafter, an ultimate fuel analysis following the requirements of ASTM E870-82 or equivalent.

## VII. LIST OF ABBREVIATIONS

A.A.C. ..... Arizona Administrative Code
ADEQ ..... Arizona Department of Environmental Quality
CEMS ..... Continuous Emission Monitoring System
CFR ..... Code of Federal Regulations
CO ..... Carbon Monoxide
EPA ..... Environmental Protection Agency
HAPS ..... Hazardous Air Pollutants
HCL ..... Hydrochloric Acid
MACT ..... Maximum Achievable Control Technology
MMBtu ..... Million British Thermal Units
MW ..... Megawatt

NESHAP ..... National Emission Standards for Hazardous Air Pollutants
$NO_x$ ..... Nitrogen Oxides
PM ..... Particulate Matter
$PM_{10}$ ..... Particulate Matter with an Aerodynamic Diameter of less than 10 microns
PTE ..... Potential to Emit
$SO_2$ ..... Sulfur Dioxide
TPY ..... Tons Per Year
VOC ..... Volatile Organic Compounds